Midway L.F.
Health Assessment work

13.1
MWLSF

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February 20, 1987

Mr. Chuck Kleeberg, Director
Environmental Health Division
Seattle-King County Department of Public Health
Room 1510 Public Safety Building
Seattle, WA 98104

Dear Mr. Kleeberg:

Enclosed are the Department of Ecology's comments on Dr. Tom Burbacher's executive summary of his study on possible health studies for Midway Landfill. Obviously, our comments are only based on the executive summary and they could change after reviewing the full report.

In general as the Superfund program matures, there is going to be more involvement than in the past by the health related agencies in Superfund work. At the federal level, the Agency for Toxic Substances and Disease Registry (ATSDR) has a mandate for extensive involvement in health related issues at Superfund sites and at the state level increased coordination is planned between the Department of Social and Health Services (DSHS) and Ecology.

Specifically, We are concerned that the executive summary outlines duplicative tasks to those already planned as a part of the Superfund Remedial Investigation and Feasibility Study and the health assessment that is required as a part of the Superfund Amendments and Reauthorization Act of 1986 (SARA). Dr. Burbacher's report should clarify what is to be accomplished under the Superfund requirements and then address any additional recommended tasks.

Ecology will take several immediate actions based upon the recommendations contained in the executive summary. Specifically, Ecology will ask ATSDR to review the RI/FS workplan to ensure that sufficient data is being collected for a health assessment that is to be performed by them or a contractor. We will also ask ATSDR that Midway Landfill be given a high priority for a health assessment once sufficient environmental data is available. Out of the work to be performed by ATSDR may come the need for some of the additional work that is suggested by Dr. Burbacher.

Please do not hesitate to call me at 438-3059, if you have any questions.

Sincerely,

Dan Swenson
Hazardous Waste Cleanup Program

DS:cp

Enclosures

cc: Rich Owings, Seattle
Neil Thompson, EPA
Joel Mulder, ATSDR
Carl Sagerser, DSHS

DEPARTMENT OF ECOLOGY
Comments on Executive Summary
Evaluating the Public Health of Hazardous Waste Site Communities
Current Federal and State Policies and Recommendations
For the Midway Landfill Community

Recommendation 1. Response to Report: Community and Agency Comments

Concur with recommendations as written

Recommendation 2. Exposure/Health Effects Evaluation

To clarify a point, the City of Seattle and its contractor are creating the data base management system for the Midway Landfill. This is a part of the consent order for the Remedial Investigation and Feasibility Study between the City of Seattle and the Department of Ecology.

Recommendation 2 calls for review of the environmental data base to determine the feasibility of conducting an Exposure/Health Effects Evaluation of past and present conditions. If deemed feasible the report calls for support for the development of this evaluation be provided by the Department of Ecology.

A process and mechanism is already in place for completion of an Exposure/Health Effects Evaluation. As a part of the upcoming Feasibility Study, the City of Seattle will be conducting an endangerment/risk assessment "to determine the magnitude and probability of actual or potential harm to the public health...by the threatened or actual releases of hazardous substances at the site." Included as Enclosure A, is the outline of the Feasibility Study Project Work Plan, which provides more details on the planned endangerment/risk assessment.

In addition to the Remedial Investigation/Feasibility Study tasks, the Superfund Amendments and Reauthorization Act of 1986 (SARA) require that a health assessment be done by the Agency for Toxic Substances and Disease Registry (ATSDR) for each National Priority List site, including Midway Landfill. This health assessment is a preliminary assessment of the potential risks to human health posed by a site. It is an evaluation performed by public health professionals and consists of reviewing environmental sampling data and other site related information by applying epidemiologic and toxicological principles. Judgements are then to be made regarding the actual or potential threat that a hazardous waste site presents to a human population. Most likely this health assessment will be conducted concurrently with the site feasibility study.The Superfund sections relating to health assessments are provided as Enclosure B.

Because of the huge workload facing ATSDR in conducting health assessments for all of the National Priority List sites, Ecology will be seeking a prompt assessment at Midway by the ATSDR rather than trying to have another health assessment initiated outside of the existing

framework. To this end Ecology will write to ATSDR requesting that Midway Landfill be given the highest priority, once sufficient environmental data is available.

Recommendation 3. Remedial Investigation/Feasibility Study (RI/FS) Health Effects Evaluation

Recommendation 3 is that a review of the RI/FS plan be conducted by health experts or a health agency to determine whether the current site investigation will provide adequate information for a comprehensive evaluation of the health risks to the surrounding community.

The current remedial investigation should provide all of the necessary environmental data to complete the endangerment/risk assessment, which is part of the feasibility study to conducted by the city of Seattle. If data are lacking to complete the assessment then it will be necessary for Seattle to collect the additional data.

Since ATSDR will, also, be conducting its health assessment, Ecology will send a copy of the current workplan for the remedial investigation to them for comment. If necessary, Seattle or Ecology will have to collect additional environmental data in order for ATSDR to complete its health assessment.

Recommendation 4. Formation of a Health Evaluation and Education Work Group

This recommendation is that a community Health Evaluation and Education Work Group be established to provide a continuous format for the discussion of health related issues. Ecology supports the formation of such a group but has reservations about the recommended organization and function of the work group. Ecology would like to see the work group more involved with the education aspects of the Midway project. Also the work group could help facilitate comments from the community on the planned feasibility study endangerment/risk assessment and the ATSDR health assessment. Different organization options need to be examined keeping in mind each group's respective roles, responsibilities and limitations, and how these factors would effect their participation in the proposed work group.

Some Health Evaluation Tasks For Consideration By The Health Evaluation and Education Work Group

Part of this recommendation is to define the population that is "at risk" by census block coding system. As a part of the remedial investigation, Seattle will be conducting a receptor survey. Its purpose is to describe populations according to paths of contaminant exposure including air, water, and soil. The primary method to be utilized to define potential exposure limits will be geographic overlays of receptor populations and pollutant pathways on study area base maps.

Incorporating a census block coding system as a part of this survey may be very useful and ought to be explored.

The need for other suggested tasks such as (1) Cancer Study, (2) Birth Certificate Study, (3) Community Health Survey and (4) Midway/Parkside School Study should be addressed by ATSDR at the completion of their health assessment. Section 10 of SARA, in part, reads as follows:

> "(7)(A) Whenever in the judgement of the Administrator of ATSDR it is appropriate on the basis of the results of a health assessment, the Administrator of ATSDR shall conduct a pilot study of health effects for selected groups of exposed individuals in order to determine the desirability of conducting full scale epidemiological or other health studies of the entire exposed population.
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> "(B) Whenever in the judgment of the Administrator of ATSDR it is appropriate on the basis of the results of such pilot study or other study or health assessment, the Administrator of ATSDR shall conduct such full scale epidemiological or other health studies as may be necessary to determine the health effects on the population exposed to hazardous substances from a release or threatened release. If a significant excess of disease in a population is identified, the letter of transmittal of such study shall include an assessment of other risk factors, other than a release, that may, in the judgment of the peer review group, be associated with such disease, if such risk factors were not taken into account in the design or conduct of the study.
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> "(8) In any case in which the results of a health assessment indicate a potential significant risk to human health, the Administrator of ATSDR shall consider whether the establishment of a registry of exposed persons would contribute to accomplishing the purposes of this subsection, taking into account circumstances bearing on the usefulness of such a registry, including the seriousness or unique character of identified diseases or the likelihood of population migration from the affected area.
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> "(9) Where the Administrator of ATSDR has determined that there is a significant increased risk of adverse health effects in humans from exposure to hazardous substances based on the results of a health assessment conducted under paragraph (6), an epidemiologic study conducted under paragraph (7), or an exposure registry that has been established under paragraph (8), and the Administrator of ATSDR has determined that such exposure is the result of a release from a facility, the Administrator of ATSDR shall initiate a health surveillance program for such population.

ENCLOSURE A

APPENDIX A

OUTLINE OF FEASIBILITY STUDY PROJECT WORK PLAN MIDWAY LANDFILL REMEDIAL INVESTIGATION

1.1 TASK 1.0 PROBLEM DEFINITION AND DESCRIPTION OF PROPOSED RESPONSE

1.1.1 Site Description

A summary of the information collected for the Midway Landfill site which will include site history and background, site conditions, nature and extent of contamination, actual and potential hazards, affected media, pathways of exposure and conditions warranting migration and remediation will be prepared. This description will form the basis for developing the overall purpose and approach to remedial actions at the site.

1.1.2 Purpose

The statement of purpose will identify each aspect of the problem at the site and define respective approaches. At the Midway Landfill site, the statement of purpose will include:

- Mitigation of landfill gas migration
- Control of contaminated ground water to protect drinking water supplies
- Control of contaminated soils on-site
- Control of potential surface water runoff

1.1.3. Endangerment Assessment

An endangerment assessment will be performed to determine the magnitude and probability of actual or potential harm to the public health, welfare, or the environment by the threatened or actual release of hazardous substances at the site. The endangerment assessment will evaluate the collective demographic, geographic, physical, chemical, and biological factors which describe the extent of the impacts of a potential or actual release of hazardous substances from the site. The endangerment assessment will identify and characterize the following:

1. Chemicals or mixtures present in all relevant environmental media
2. Environmental fate and transport mechanisms within specified environmental media, including hydrogeological evaluations and assessments
3. Intrinsic toxicological properties of specified substances

4. Exposure pathways and extent of expected exposure

5. Population at risk

6. Extent of expected harm and the likelihood of such harm occurring (risk characterization)

Each of these areas is described below.

1.1.3.1 Hazardous Substances at the Site. The type of substance present at the site as identified during the RI will be summarized. The individual physical and chemical properties of the hazardous substances identified at the site influence how they will migrate from the site and impact receptor populations. The important physical and chemical properties will be tabulated for use in the analysis of the efficiency of remedial action alternatives and estimating the time required for self-cleaning under a no-action alternative.

1.1.3.2 Environmental Fate and Transport Mechanisms. The probable fate and transport mechanisms within the specified environmental media will be summarized. Part of this assessment will include hydrogeological evaluations and assessments to determine the likelihood of hazardous substance leaving the site via ground or surface water. Geologic and meteorological impacts will be assessed. A summation of pertinent substance's physical properties will be made, as well as susceptibility to biodegradation/biotransformation processes. By combining the information with site-specific geological and hydrogeological information, a prediction can be made of the presence, persistence, and transport of substances at the site.

1.1.3.3 Routes of Exposure. The routes of exposure describe the various pathways by which the population at risk may become exposed to the site's hazardous substances. Typical routes of exposure include surface water, ground water, airborne vapor and particulates and direct contact. Each route of exposure will be evaluated to assess its potential for exposing humans as well as aquatic and terrestrial species to hazardous wastes.

1.1.3.4 Population at Risk. Each of the specific populations will be identified which are potentially exposed to hazardous wastes at or migrating population, size, route of exposure, level of exposure, and the projected duration (acute or chronic) will be identified.

1.1.3.5 Impact Evaluation. The effects of a discharge of hazardous substance upon public health, welfare, or the environment will be established using both direct and indirect evidence. Direct evidence reflects observed effects on target species, and indirect evidence reflects the presence of toxic chemicals at levels associated with such observed effects. The impact evaluation will include an assessment of qualitative exposure levels, as well as the assessment of qualitative risk. A qualitative assessment includes review of all pertinent ecological and health science information, followed by an evaluation of existent scientific and technical data. A risk assessment is useful in providing information concerning potential health hazards in situations where specific groups of people are exposed to particular toxic substance at the waste sites.

1.1.3.6 Pertinent Criteria for Permissible Exposure. There are a variety of criteria or standards relating to permissible exposure to hazardous substances including water quality criteria published by EPA, as well as water quality standards generated by the EPA Office of Drinking Water. The quantitative risk assessments for the priority pollutants conducted by the EPA Office of Water Regulation and Standards also provide information on permissible exposure to hazardous substances via waterborne pathways. Other information sources include reports published by the EPA Carcinogen Assessment Group. Each of these sources as well as other data on the suggested no adverse response levels (SNARL), the no observed effect level (NOEL) and other measures of toxicity will be included in the criteria assembled to evaluate permissible exposure for compounds for which no standards exist.

1.1.3.7 Comparison of Receptor Exposures to Criteria and Standards. The individual receptor exposures will be evaluated to determine the total dose which could be received from all exposure pathways. This dose will then be compared with the various criteria and standards which are available for evaluating the permissible exposures to hazardous substances. A comparison of the dose received by the receptor with the permissible exposure provides a basis for examining the public health and environmental risk associated with the exposure to hazardous waste materials.

1.1.4 Endangerment Report

With the available information the endangerment assessment will evaluate the adequacy, accuracy/precision, comprehensiveness, reliability and overall quality of identified information and data. This evaluation will use the following outline and use qualitative and/or quantitative terms as appropriate.

1. Physical Description of the Site and Site History
    a. geographic location
    b. management practices/site use/site modifications
    c. chronological survey
    d. facility description/containment systems
    e. substances brought on-site (identify, quantity, manner of disposal)
2. Site Contamination/Off-Site Contamination
    a. identify substances detected
    b. concentration of substances detected
    c. analytical methodology and QA/QC
    d. survey of environmental monitoring studies (detailed discussion of environmental media and contamination levels)

3. Environmental Fate and Transport

   a. physical-chemical properties of specified chemicals/ substances (e.g., soil/sediment adsorption coefficients, vapor pressures, solubility, etc.)

   b. photodegradation rates, decomposition rates, hydrological rates, chemical transformations, etc.

   c. local topography

   d. description of the hydrological setting and flow system

   e. climatic factors, other factors affecting fate and transport

   f. prediction of fate and transport (where necessary using modeling methods)

4. Toxicological Properties (hazard identification)

   a. metabolism

   b. acute toxicity

   c. subchronic toxicity

   d. chronic toxicity

   e. carcinogenicity

   f. mutagenicity

   g. teratogenicity/reproductive effects

   h. other health effects as relevant including neurotoxicity, immuno-depressant activity, allergic reactions, etc.

   i. epidemiological evidence (chemical specific or site specific)

   j. aquatic/non-human terrestrial species toxicity/ environmental quality impairment

5. Exposure Assessment

   a. demographic profile of populations at risk including subpopulation at special risk

   b. background chemical exposures

   c. life style and occupation histories

d. population macro- and micro-environments

e. exposure routes

f. magnitude, source, and probability of exposure to specified substances

6. Risk Assessment and Impact Evaluation

a. carcinogenic risk assessment

b. probability of noncarcinogenic human health effects

c. non-human species risk assessment

d. environmental impacts/ecosystem alternations

7. Conclusions

Appendices

1.1.4.1 Establishment of Site Specific Remedial Response Objectives and Criteria. Site-specific remedial response objectives will be established based on the definition of the problem, proposed approach and risk assessment for the site. The objectives will identify for this site the minimum acceptable extent of remedy such that "adequate protection of public health, welfare or the environment" is achieved, according to Section 300.68 of the National Contingency Plan.

1.2 TASK 2.0 IDENTIFICATION OF REMEDIAL ALTERNATIVES

Considering the remedial response objectives for the site, a limited number of alternatives will be identified, including source control, off-site actions, and on-action alternatives. Each alternative will consist of individual remedial technologies combined to form a comprehensive plan for addressing all of the remedial response objectives for the site. Table 5-1 lists some remedial technologies which may be applicable to the Midway Landfill site.

1.3 TASK 3.0 INITIAL SCREENING OF ALTERNATIVES

In order to narrow the list of potential remedial actions at the site and to focus resources on the most likely alternatives, an initial screening of the alternatives developed in Task 5.2 will be performed. This screening will be based on general descriptions of the alternatives and will consider four broad criteria: effects and benefits of the alternatives, cost, engineering suitability and institutional factors. The alternatives will be evaluated according to these criteria at a conceptual level in order to eliminate alternatives which clearly appear unlikely to meet the requirements of CERCLA and the NCP for selection of the most cost-effective alternative.

ENCLOSURE B

SEC. 110. HEALTH-RELATED AUTHORITIES.

Section 104(i) of CERCLA is amended as follows:

(1) Insert "(1)" after "(i)" and redesignate paragraphs (1), (2), (3), (4), and (5) as subparagraphs (A), (B), (C), (D), and (E).

(2) In paragraph (1), strike "and" after "Health Administration," and insert after "Social Security Administration," the following: "the Secretary of Transportation, and appropriate State and local health officials,".

(3) Insert after "chromosomal testing" in subparagraph (D) (as redesignated by paragraph (1) of this subsection) the following: "where appropriate".

(4) Add the following new paragraphs at the end thereof:

"(2)(A) Within 6 months after the enactment of the Superfund Amendments and Reauthorization Act of 1986, the Administrator of the Agency for Toxic Substances and Disease Registry (ATSDR) and the Administrator of the Environmental Protection Agency (EPA) shall prepare a list, in order of priority, of at least 100 hazardous substances which are most commonly found at facilities on the National Priorities List and which, in their sole discretion, they determine are posing the most significant potential threat to human health due to their known or suspected toxicity to humans and the potential for human exposure to such substances at facilities on the National Priorities List or at facilities to which a response to a release or a threatened release under this section is under consideration.

"(B) Within 24 months after the enactment of the Superfund Amendments and Reauthorization Act of 1986, the Administrator of ATSDR and the Administrator of EPA shall revise the list prepared under subparagraph (A). Such revision shall include, in order of priority, the addition of 100 or more such hazardous substances. In each of the 3 consecutive 12-month periods that follow, the Administrator of ATSDR and the Administrator of EPA shall revise, in the same manner as provided in the 2 preceding sentences, such list to include not fewer than 25 additional hazardous substances per revision. The Administrator of ATSDR and the Administrator of EPA shall not less often than once every year thereafter revise such list to include additional hazardous substances in accordance with the criteria in subparagraph (A).

"(3) Based on all available information, including information maintained under paragraph (1)(B) and data developed and collected on the health effects of hazardous substances under this paragraph, the Administrator of ATSDR shall prepare toxicological profiles of each of the substances listed pursuant to paragraph (2). The toxicological profiles shall be prepared in accordance with guidelines developed by the Administrator of ATSDR and the Administrator of EPA. Such profiles shall include, but not be limited to each of the following:

"(A) An examination, summary, and interpretation of available toxicological information and epidemiologic evaluations on a hazardous substance in order to ascertain the levels of significant human exposure for the substance and the associated acute, subacute, and chronic health effects.

"(B) A determination of whether adequate information on the health effects of each substance is available or in the process of development to determine levels of exposure which present a

significant risk to human health of acute, subacute, and chronic health effects.

"(C) Where appropriate, an identification of toxicological testing needed to identify the types or levels of exposure that may present significant risk of adverse health effects in humans.

Any toxicological profile or revision thereof shall reflect the Administrator of ATSDR's assessment of all relevant toxicological testing which has been peer reviewed. The profiles required to be prepared under this paragraph for those hazardous substances listed under subparagraph (A) of paragraph (2) shall be completed, at a rate of no fewer than 25 per year, within 4 years after the enactment of the Superfund Amendments and Reauthorization Act of 1986. A profile required on a substance listed pursuant to subparagraph (B) of paragraph (2) shall be completed within 3 years after addition to the list. The profiles prepared under this paragraph shall be of those substances highest on the list of priorities under paragraph (2) for which profiles have not previously been prepared. Profiles required under this paragraph shall be revised and republished as necessary, but no less often than once every 3 years. Such profiles shall be provided to the States and made available to other interested parties.

"(4) The Administrator of the ATSDR shall provide consultations upon request on health issues relating to exposure to hazardous or toxic substances, on the basis of available information, to the Administrator of EPA, State officials, and local officials. Such consultations to individuals may be provided by States under cooperative agreements established under this Act.

"(5)(A) For each hazardous substance listed pursuant to paragraph (2), the Administrator of ATSDR (in consultation with the Administrator of EPA and other agencies and programs of the Public Health Service) shall assess whether adequate information on the health effects of such substance is available. For any such substance for which adequate information is not available (or under development), the Administrator of ATSDR, in cooperation with the Director of the National Toxicology Program, shall assure the initiation of a program of research designed to determine the health effects (and techniques for development of methods to determine such health effects) of such substance. Where feasible, such program shall seek to develop methods to determine the health effects of such substance in combination with other substances with which it is commonly found. Before assuring the initiation of such program, the Administrator of ATSDR shall consider recommendations of the Interagency Testing Committee established under section 4(e) of the Toxic Substances Control Act on the types of research that should be done. Such program shall include, to the extent necessary to supplement existing information, but shall not be limited to—

"(i) laboratory and other studies to determine short, intermediate, and long-term health effects;

"(ii) laboratory and other studies to determine organ-specific, site-specific, and system-specific acute and chronic toxicity;

"(iii) laboratory and other studies to determine the manner in which such substances are metabolized or to otherwise develop an understanding of the biokinetics of such substances; and

"(iv) where there is a possibility of obtaining human data, the collection of such information.

"(B) In assessing the need to perform laboratory and other studies, as required by subparagraph (A), the Administrator of ATSDR shall consider—

"(i) the availability and quality of existing test data concerning the substance on the suspected health effect in question;

"(ii) the extent to which testing already in progress will, in a timely fashion, provide data that will be adequate to support the preparation of toxicological profiles as required by paragraph (3); and

"(iii) such other scientific and technical factors as the Administrator of ATSDR may determine are necessary for the effective implementation of this subsection.

"(C) In the development and implementation of any research program under this paragraph, the Administrator of ATSDR and the Administrator of EPA shall coordinate such research program implemented under this paragraph with the National Toxicology Program and with programs of toxicological testing established under the Toxic Substances Control Act and the Federal Insecticide, Fungicide and Rodenticide Act. The purpose of such coordination shall be to avoid duplication of effort and to assure that the hazardous substances listed pursuant to this subsection are tested thoroughly at the earliest practicable date. Where appropriate, consistent with such purpose, a research program under this paragraph may be carried out using such programs of toxicological testing.

"(D) It is the sense of the Congress that the costs of research programs under this paragraph be borne by the manufacturers and processors of the hazardous substance in question, as required in programs of toxicological testing under the Toxic Substances Control Act. Within 1 year after the enactment of the Superfund Amendments and Reauthorization Act of 1986, the Administrator of EPA shall promulgate regulations which provide, where appropriate, for payment of such costs by manufacturers and processors under the Toxic Substances Control Act, and registrants under the Federal Insecticide, Fungicide, and Rodenticide Act, and recovery of such costs from responsible parties under this Act.

"(6)(A) The Administrator of ATSDR shall perform a health assessment for each facility on the National Priorities List established under section 105. Such health assessment shall be completed not later than December 10, 1988, for each facility proposed for inclusion on such list prior to the date of the enactment of the Superfund Amendments and Reauthorization Act of 1986 or not later than one year after the date of proposal for inclusion on such list for each facility proposed for inclusion on such list after such date of enactment.

"(B) The Administrator of ATSDR may perform health assessments for releases or facilities where individual persons or licensed physicians provide information that individuals have been exposed to a hazardous substance, for which the probable source of such exposure is a release. In addition to other methods (formal or informal) of providing such information, such individual persons or licensed physicians may submit a petition to the Administrator of ATSDR providing such information and requesting a health assessment. If such a petition is submitted and the Administrator of ATSDR does not initiate a health assessment, the Administrator of ATSDR shall provide a written explanation of why a health assessment is not appropriate.

"(C) In determining the priority in which to conduct health assessments under this subsection, the Administrator of ATSDR, in consultation with the Administrator of EPA, shall give priority to those facilities at which there is documented evidence of the release of hazardous substances, at which the potential risk to human health appears highest, and for which in the judgment of the Administrator of ATSDR existing health assessment data are inadequate to assess the potential risk to human health as provided in subparagraph (F). In determining the priorities for conducting health assessments under this subsection, the Administrator of ATSDR shall consider the National Priorities List schedules and the needs of the Environmental Protection Agency and other Federal agencies pursuant to schedules for remedial investigation and feasibility studies.

"(D) Where a health assessment is done at a site on the National Priorities List, the Administrator of ATSDR shall complete such assessment promptly and, to the maximum extent practicable, before the completion of the remedial investigation and feasibility study at the facility concerned.

"(E) Any State or political subdivision carrying out a health assessment for a facility shall report the results of the assessment to the Administrator of ATSDR and the Administrator of EPA and shall include recommendations with respect to further activities which need to be carried out under this section. The Administrator of ATSDR shall state such recommendation in any report on the results of any assessment carried out directly by the Administrator of ATSDR for such facility and shall issue periodic reports which include the results of all the assessments carried out under this subsection.

"(F) For the purposes of this subsection and section 111(c)(4), the term 'health assessments' shall include preliminary assessments of the potential risk to human health posed by individual sites and facilities, based on such factors as the nature and extent of contamination, the existence of potential pathways of human exposure (including ground or surface water contamination, air emissions, and food chain contamination), the size and potential susceptibility of the community within the likely pathways of exposure, the comparison of expected human exposure levels to the short-term and long-term health effects associated with identified hazardous substances and any available recommended exposure or tolerance limits for such hazardous substances, and the comparison of existing morbidity and mortality data on diseases that may be associated with the observed levels of exposure. The Administrator of ATSDR shall use appropriate data, risk assessments, risk evaluations and studies available from the Administrator of EPA.

"(G) The purpose of health assessments under this subsection shall be to assist in determining whether actions under paragraph (11) of this subsection should be taken to reduce human exposure to hazardous substances from a facility and whether additional information on human exposure and associated health risks is needed and should be acquired by conducting epidemiological studies under paragraph (7), establishing a registry under paragraph (8), establishing a health surveillance program under paragraph (9), or through other means. In using the results of health assessments for determining additional actions to be taken under this section, the Administrator of ATSDR may consider additional information on the risks to the potentially affected population from all sources of

such hazardous substances including known point or nonpoint sources other than those from the facility in question.

"(H) At the completion of each health assessment, the Administrator of ATSDR shall provide the Administrator of EPA and each affected State with the results of such assessment, together with any recommendations for further actions under this subsection or otherwise under this Act. In addition, if the health assessment indicates that the release or threatened release concerned may pose a serious threat to human health or the environment, the Administrator of ATSDR shall so notify the Administrator of EPA who shall promptly evaluate such release or threatened release in accordance with the hazard ranking system referred to in section 105(a)(8)(A) to determine whether the site shall be placed on the National Priorities List or, if the site is already on the list, the Administrator of ATSDR may recommend to the Administrator of EPA that the site be accorded a higher priority.

"(7)(A) Whenever in the judgment of the Administrator of ATSDR it is appropriate on the basis of the results of a health assessment, the Administrator of ATSDR shall conduct a pilot study of health effects for selected groups of exposed individuals in order to determine the desirability of conducting full scale epidemiological or other health studies of the entire exposed population.

"(B) Whenever in the judgment of the Administrator of ATSDR it is appropriate on the basis of the results of such pilot study or other study or health assessment, the Administrator of ATSDR shall conduct such full scale epidemiological or other health studies as may be necessary to determine the health effects on the population exposed to hazardous substances from a release or threatened release. If a significant excess of disease in a population is identified, the letter of transmittal of such study shall include an assessment of other risk factors, other than a release, that may, in the judgment of the peer review group, be associated with such disease, if such risk factors were not taken into account in the design or conduct of the study.

"(8) In any case in which the results of a health assessment indicate a potential significant risk to human health, the Administrator of ATSDR shall consider whether the establishment of a registry of exposed persons would contribute to accomplishing the purposes of this subsection, taking into account circumstances bearing on the usefulness of such a registry, including the seriousness or unique character of identified diseases or the likelihood of population migration from the affected area.

"(9) Where the Administrator of ATSDR has determined that there is a significant increased risk of adverse health effects in humans from exposure to hazardous substances based on the results of a health assessment conducted under paragraph (6), an epidemiologic study conducted under paragraph (7), or an exposure registry that has been established under paragraph (8), and the Administrator of ATSDR has determined that such exposure is the result of a release from a facility, the Administrator of ATSDR shall initiate a health surveillance program for such population. This program shall include but not be limited to—

"(A) periodic medical testing where appropriate of population subgroups to screen for diseases for which the population or subgroup is at significant increased risk; and

"(B) a mechanism to refer for treatment those individuals within such population who are screened positive for such diseases.

"(10) Two years after the date of the enactment of the Superfund Amendments and Reauthorization Act of 1986, and every 2 years thereafter, the Administrator of ATSDR shall prepare and submit to the Administrator of EPA and to the Congress a report on the results of the activities of ATSDR regarding—

"(A) health assessments and pilot health effects studies conducted;

"(B) epidemiologic studies conducted;

"(C) hazardous substances which have been listed under paragraph (2), toxicological profiles which have been developed, and toxicologic testing which has been conducted or which is being conducted under this subsection;

"(D) registries established under paragraph (8); and

"(E) an overall assessment, based on the results of activities conducted by the Administrator of ATSDR, of the linkage between human exposure to individual or combinations of hazardous substances due to releases from facilities covered by this Act or the Solid Waste Disposal Act and any increased incidence or prevalence of adverse health effects in humans.

"(11) If a health assessment or other study carried out under this subsection contains a finding that the exposure concerned presents a significant risk to human health, the President shall take such steps as may be necessary to reduce such exposure and eliminate or substantially mitigate the significant risk to human health. Such steps may include the use of any authority under this Act, including, but not limited to—

"(A) provision of alternative water supplies, and

"(B) permanent or temporary relocation of individuals.

In any case in which information is insufficient, in the judgment of the Administrator of ATSDR or the President to determine a significant human exposure level with respect to a hazardous substance, the President may take such steps as may be necessary to reduce the exposure of any person to such hazardous substance to such level as the President deems necessary to protect human health.

"(12) In any case which is the subject of a petition, a health assessment or study, or a research program under this subsection, nothing in this subsection shall be construed to delay or otherwise affect or impair the authority of the President, the Administrator of ATSDR, or the Administrator of EPA to exercise any authority vested in the President, the Administrator of ATSDR or the Administrator of EPA under any other provision of law (including, but not limited to, the imminent hazard authority of section 7003 of the Solid Waste Disposal Act) or the response and abatement authorities of this Act.

"(13) All studies and results of research conducted under this subsection (other than health assessments) shall be reported or adopted only after appropriate peer review. Such peer review shall be completed, to the maximum extent practicable, within a period of 60 days. In the case of research conducted under the National Toxicology Program, such peer review may be conducted by the Board of Scientific Counselors. In the case of other research, such peer review shall be conducted by panels consisting of no less than three nor more than seven members, who shall be disinterested scientific experts selected for such purpose by the Administrator of

ATSDR or the Administrator of EPA, as appropriate, on the basis of their reputation for scientific objectivity and the lack of institutional ties with any person involved in the conduct of the study or research under review. Support services for such panels shall be provided by the Agency for Toxic Substances and Disease Registry, or by the Environmental Protection Agency, as appropriate.

"(14) In the implementation of this subsection and other health-related authorities of this Act, the Administrator of ATSDR shall assemble, develop as necessary, and distribute to the States, and upon request to medical colleges, physicians, and other health professionals, appropriate educational materials (including short courses) on the medical surveillance, screening, and methods of diagnosis and treatment of injury or disease related to exposure to hazardous substances (giving priority to those listed in paragraph (2)), through such means as the Administrator of ATSDR deems appropriate.

"(15) The activities of the Administrator of ATSDR described in this subsection and section 111(c)(4) shall be carried out by the Administrator of ATSDR, either directly or through cooperative agreements with States (or political subdivisions thereof) which the Administrator of ATSDR determines are capable of carrying out such activities. Such activities shall include provision of consultations on health information, the conduct of health assessments, including those required under section 3019(b) of the Solid Waste Disposal Act, health studies, registries, and health surveillance.

"(16) The President shall provide adequate personnel for ATSDR, which shall not be fewer than 100 employees. For purposes of determining the number of employees under this subsection, an employee employed by ATSDR on a part-time career employment basis shall be counted as a fraction which is determined by dividing 40 hours into the average number of hours of such employee's regularly scheduled workweek.

"(17) In accordance with section 120 (relating to Federal facilities), the Administrator of ATSDR shall have the same authorities under this section with respect to facilities owned or operated by a department, agency, or instrumentality of the United States as the Administrator of ATSDR has with respect to any nongovernmental entity.

"(18) If the Administrator of ATSDR determines that it is appropriate for purposes of this section to treat a pollutant or contaminant as a hazardous substance, such pollutant or contaminant shall be treated as a hazardous substance for such purpose.".

SEC. 111. USES OF FUND.

(a) AMOUNT OF FUND.—Section 111 of CERCLA is amended by inserting after "(a)" the following: "IN GENERAL.—For the purposes specified in this section there is authorized to be appropriated from the Hazardous Substance Superfund established under subchapter A of chapter 98 of the Internal Revenue Code of 1986 not more than $8,500,000,000 for the 5-year period beginning on the date of enactment of the Superfund Amendments and Reauthorization Act of 1986, and such sums shall remain available until expended. The preceding sentence constitutes a specific authorization for the funds appropriated under title II of Public Law 99-160 (relating to payment to the Hazardous Substances Trust Fund).".

(b) USES OF FUNDS UNDER SECTION 111(a).—Section 111(a) of CERCLA is amended by striking out "; and" at the end of paragraph